

## Family Polymixiidae

Body rather elongated. Head compressed, with decurved profile. Snout short. Mouth-cleft lateral and nearly horizontal. Teeth fine, in bands in jaws and on palate. Two barbels at throat. Preopercle serrated. Gill openings large, membranes separate and free from isthmus. Pyloric appendages in moderate number. Air bladder with thin walls, with vestiges of pneumatic duct. Vertebrae 29. Scales ctenoid, not serrated. Lateral line concurrent with dorsal profile of back. Dorsal moderately long, with several spines, graduated posteriorly. Anal opposite hind part of dorsal. Pectoral rays branched. Ventrals thoracic, with spine and 6 or 7 rays.

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Genus Polymixia Lowe

Polymixia Lowe, Trans. Cambridge  
Philos. Soc., vol. 6, p. 198, 1838.

(Type Polymixia nobilis Lowe, monotypic.)

Hemobrama Valenciennes, Hist. Nat. Canaries,  
vol. 2, pt. 2, p. 40, 1836-44. (Type Hemobrama  
webbi Valenciennes, monotypic.)

Dinemus Poey, Mem. Hist. Nat. Cuba, vol. 2,  
pp. 107, 161, 1860. (Type Dinemus  
venustus Poey, monotypic.)

Body compressed, deepest medially. Head moderate, compressed. Snout short, obtuse. Eye high, large. Mouth large, inferior, upper jaw protruding. Maxillary reaches well below to behind eye. Barbels long. Teeth in villiform bands in both jaws, on vomer, palatines and pterygoids. Opercle without spine. Preopercle indistinctly crenulated. Pseudobranchiae present. Gill rakers moderate. Branchiostegals 4. Scales small, rather oblique. Lateral line complete, axial. One dorsal with 4 or 5 spines. Anal with 3 or 4 spines. Caudal forked. Paired fins low, short.

Small fishes living in rather deep water in tropical seas.

## Analysis of species

a.<sup>1</sup> Scales small, 40 or more in lateral line.

b.<sup>1</sup> D. V, 28; scales 54 in lateral line to caudal base.  
lowei.

b.<sup>2</sup> D. V, 33; scales 42 in lateral line to caudal base.  
nobilis.

a.<sup>2</sup> Scales large, 33 to 35 in lateral line to caudal base;  
D. V or VI, 33 to 36. japonica.

bands; anal with longitudinal band; suborbital depth  $1\frac{2}{5}$  in eye; caudal ends in upper filament.

japonicus.

p.<sup>2</sup> Head slender.

g.<sup>1</sup> Three rows of cheek scales.

r.<sup>1</sup> Single broad yellow median lateral band from snout tip through eye to caudal base; dorsal edged yellow; lower fin yellow; suborbital depth  $3\frac{1}{4}$  in eye.

balinensis.

Cant 3  
name  
only

r.<sup>2</sup> Two longitudinal yellow bands from eye, 1 above and another below lateral line to caudal base; dorsals with 3 yellow longitudinal bands; suborbital depth 5 in eye.

nematopus.

r.<sup>3</sup> Three longitudinal yellow bands, upper along edge of back, median along lateral line and lower from pectoral axil; dorsals edge yellow,

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Polymixia lowei Günther

Polymixia lowei (Günther, Cat. Fishes Brit. Mus., vol. 1, p. 17, 1859 (type locality, Caribbean Sea). — Poey, Repert. Hist. Nat. Cuba, vol. 2, p. 159, 1865-68.

— Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 1, p. 854, 1896 (compiled). —

Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher. Append. pt. 2, 1928 (1930), p. 234 (reference).

Ainemus venustus Poey, Mem. Hist. Nat. Cuba, vol. 2, pp. 161, 352, pl. 14, fig. 1, 1860 (type locality, Cuba [= Havana]).

— Günther, Zool. Record, Pisces, p. 147, 1868.

Polymixia nobilis (not Lowe) (Günther, Rep. Voy. Challenger, vol. 22, p. 34, 1887 (part). — Goode and Bean, Oceanic Ichth., p. 243, 1895 (part).

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Depth 3; head 3. Snout  $4\frac{4}{5}$   
in head; eye  $2\frac{7}{8}$ , greatly exceeds  
snout or interorbital; maxillary  
reaches slightly behind eye,  
expansion 2 in eye, length  $1\frac{4}{5}$   
in head; barbel  $1\frac{1}{5}$ , reaches back  
opposite pectoral origin;  
preopercle angle finely denticulate.

Scales 60 along lateral line;  
smaller on head and extend  
forward nearly to the nostrils.

D. IV, 28, graduated up to  
fifth spine which  $3\frac{3}{4}$  in head,  
front of soft dorsal  $1\frac{9}{10}$ ; A.  
III, 16, third spine  $4\frac{2}{5}$ , front  
of soft anal  $2\frac{3}{4}$ ; caudal  $1\frac{1}{10}$ ,  
deeply forked, least depth of  
caudal peduncle  $2\frac{2}{3}$ ; pectoral  
 $1\frac{1}{2}$ , rays 18; ventral rays I, 7,  
fin length  $2\frac{1}{4}$  in head.

bands.

C.<sup>2</sup> Body with ~~dark~~ transverse blotches. smithii.

T.<sup>1</sup> Body with 5 dark transverse violaceous rosy blotches, reaching middle of sides; dorsals edged yellow.

T.<sup>2</sup> Body with 7 dark brown saddles, apparently giving place to pinkish or purplish longitudinal bands with age; second and third dorsal spines and caudal filamentous. ovenii.

L.<sup>2</sup> First two dorsal spines elongated in filaments; body and head with yellow longitudinal bands; yellow band on anal; suborbital depth  $\frac{1}{2}$  in eye. luteus.

A.<sup>2</sup> Adontoglyphis. Membranes of spinous dorsal notched marginally. nematophorus.

A.<sup>1</sup> Body and head with longitudinal yellow bands; fins uniform rosy. corvina.

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Delicate violet, dark on back  
and fins with white and  
golden reflections. Upper edge  
of orbit and 2 bands on snout  
above golden green. Maxillary  
rose. Iris white, with red  
and blue reflections. Inner  
edge of each caudal lobe whitish.  
Length 350 mm. (Poey.)

Caribbean Sea, Cuba. Günther  
described this species from a  
specimen 250 mm long. Some  
features slightly at variance  
<sup>or omitted in</sup> ~~with~~ the above are: Eye 3 in  
head; interorbital 4; scales  
50 in lateral line; D. V, 30.

rays crossing lateral line, another parallel above one row of scales ends below last soft dorsal rays; below lateral line 6 or 7 silvery stripes wide as pupil; upper caudal lobe ends in filament.

1. Suborbital depth greater than eye.

2. Suborbital depth half eye, vigatus.  
aurifilum.

2. Five greenish yellow horizontal bands below lateral line; brilliant crimson shoulder spot; light blue bar before eye from above and another from below; dorsals bordered golden; anal basal half yellow, terminal half lilac with 3 basal and 2 median pale blue bands.

3. Four rows of scales on cheek; 30 dark >-shaped dark bars along lateral line; dorsals with 2 yellow longitudinal

theodore; 3  
Caudal fin rays

Polymixia nobilis Lowe

Polymixia nobilis Lowe, Trans. Cambridge Philos. Soc., vol. 6, p. 198, pl. 4, figs. 1-2, 1838 (type locality, Madeira). — Günther, Cat. Fish. Brit. Mus., vol. 1, p. 17, 1859 (Madeira; St. Helena); Proc. Zool. Soc. London, p. 238, 1869 (St. Helena). —

~~Bleeker, Res. Madagascar Pollen et Van Dam, pt. 4, p. 86, 1874 (Bourbon). —~~

Melliss, St. Helena, p. 105, 1875. —

Günther, Rep. Voy. Challenger, vol. 22, p. 34, pl. 1, fig. 31, 1887 (Madeira, Canaries, St. Helena). — Steindachner, Sitzs. Ber.

Akad. Wiss. Wien, vol. 100, pt. 1, p. 356, 1891 (Las Palmas, Santa Cruz de Teneriffe, Valle de San Andres, 100 to 2500 meters, east coast Grand Canary). — Vinciguerra, Atti Soc. Ital. Sci. Nat., vol. 34, p. 313, 1892 (Canaries).

Hemobrama webbi Valenciennes, Hist. Nat. Canaries, vol. 2, pt. 2, p. 41, pl. 8, 1836-44 (type locality, Canaries).

Depth  $2\frac{3}{4}$ ; head  $3\frac{1}{3}$ . Snout  $4\frac{1}{5}$  in head; eye  $3\frac{2}{5}$ , greater than snout; maxillary reaches opposite hind pupil edge, expansion  $1\frac{2}{3}$  in eye, length 2 in head; barbel 1, reaches little beyond pectoral base; interorbital low.

Scales about 42 in lateral line to caudal base and 4 more on latter; 4 above, 11 above anal origin, 7 rows on cheek. Scales without basal radiating striae, basal edge with about 6 lobes and basally fine circuli; apically about 10 series of minute uniform denticles, or about 32 in a series.

with 2 bluish submarginal lines  
of soft fin; 2 pale yellow bands on  
anal; suborbital depth  $1\frac{1}{2}$  in eye.

mesoprius.

r. <sup>4</sup> Five longitudinal yellow bands on  
head and body; dorsals edged yellow,  
with 2 bluish submarginal lines; anal  
with median yellow band; suborbital  
depth  $1\frac{1}{8}$  in eye.

tumbuloides.

r. <sup>5</sup> Five longitudinal yellow bands,  
upper 2 and lowest from eye, third and  
fourth from suprascapula; 2 yellow  
bands on dorsals; suborbital depth  
 $\frac{7}{8}$  in eye.

sumbawensis.

r. <sup>6</sup> Nine narrow longitudinal yellow  
bands or lines on body; dorsals edged  
yellow; suborbital depth  $1\frac{1}{3}$  in eye.

gracilis. <sup>3</sup>  
*caudal*  
*narrow*  
*only*

r. <sup>7</sup> narrow yellow line from opercle  
angle to bases of upper caudal

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D. V, I, 33, fifth spine  $3\frac{3}{4}$   
in head, first simple ray  $1\frac{2}{3}$ ;  
A. IV, 16, fourth spine  $2\frac{7}{8}$ ,  
first branched ray  $1\frac{4}{5}$ ; caudal  
 $3\frac{1}{5}$  in rest of fish, deeply  
forked, lobes pointed; least  
depth of caudal peduncle  
 $2\frac{7}{8}$  in head; pectoral  $1\frac{3}{4}$ , rays  
I, 16 or 17; ventral rays I, 6,  
fin 2 in head.

Gray blue above, whitish on  
under surface of head, chest,  
breast and belly. Muzzle  
gray. Iris yellowish and white.  
Fins all more or less grayish,  
vertical fins and pectoral  
dark neutral slate. Barbels  
and chin pinkish. Length  
383 mm. (Lowe.)

A doubtful species, imperfectly  
described and only known from the  
type. Valenciennes says the suborbital  
is deep, scales on cheeks larger than  
those on body, 45 scales in lateral  
line, D. X, 9 and A. III, 7.

Madagascar, Canaries, St. Helena.  
Remobrama webbi Valenciennes  
is said to reach 350 mm. Some  
of its characters are shown as:  
Depth  $2\frac{7}{8}$ ; head  $3\frac{1}{10}$ , width  $2\frac{1}{2}$ ;  
eye  $3\frac{4}{5}$  in head; maxillary  
reaches hind edge of orbit;  
barbels long as head, reach  
beyond ventral base; scales  
50 to 54 in lateral line, 4  
above, 9 below, 6 rows on cheek;  
D. V, 38; A. III, 18; pectoral  
rays 16, fin 2 in head; ventral  
rays I, 7. Greenish on back,  
silvery white below. Blue or  
greenish dots form 10 to 12  
longitudinal streaks, more  
distinct above.

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Synagris hexodon (Quoy and Gaimard)

Dentex hexodon Quoy and Gaimard, Voy.

Uranie, Zool., December 15, 1824, p. 301.

Junior,  $\frac{1}{m}$  Valenciennes, Hist. Nat. Poiss.,

vol. 6, 1830, p. 242 (Junior),  $\frac{1}{m}$  Bleeker,

Atlas Ichth. Ind. Néerland., vol. 8, 1876-77,

p. 84 (copied).

Synagris hexodon Günther, Cat. Fishes

Brit. Mus., vol. 1, 1859, p. 376 (copied).

Elongate ovoid. Snout blunt; eye high; mouth large. Six canines in each jaw with small villiform teeth behind. Scales large, ctenoid, exposures deeper than wide; jaws and caudal base scaly. Lateral line arched high. D. X, 10; A. III, 8; caudal forked, rays 17; pectoral rays 17. Body rosy, nearly uniform and silvery. Eye golden. Length 190 mm.

(Quoy and Gaimard.)

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Polymixia japonica Günther

Polymixia japonica Günther, Ann. Mag. Nat. Hist., ser. 4, vol. 20, p. 436, 1877 (type locality, off Inoshima, Japan, 345 fathoms). — Steindachner and Döderlein, Denks. Akad. Wiss. Wien, vol. 47, pt. 1, p. 221, pl. 4, fig. 2, 1883 (Tokyo). — Ishikawa and Matsuura, Cat. Fish. Mus. Tokyo, p. 58, 1897. — Jordan and Fowler, Proc. U. S. Nat. Mus., vol. 26, p. 18, 1902 (Misaki). — Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 118, 1913 (Misaki). — Fowler, Mem. Bishop Mus., vol. 10, p. 96, 1928 (Honolulu). — Anonymous, Illustrat. Jap. Aquat. Plants and Animals, vol. 1, pl. 23, fig. 5, 1931.

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Polymixia nobilis (not Lowe) Günther,  
Rep. Voy. Challenger, vol. 22, p. 34,  
1887 (Moskonia <sup>mauritus</sup>). — Alcock, Ann. Mag.  
Nat. Hist., ser. 6, vol. 4, p. 381,  
November 1889 (Andaman Sea off Ross Island,  
~~Arafura Sea~~, 271 fathoms);  
ser. 6, vol. 8, p. 223, July 1891 (Arafura  
Sea, 188 to 220 fathoms).

— Goode and Bean, Oceanic Ichth.,  
p. 243, 1895 (part). — Alcock, Descript.  
Cat. Fish. Indian Mus., p. 38, 1899  
(Andaman Sea, 185 to 405 fathoms).

— Schmidt, Trans. Pac. Comm. Acad.  
Sci. U. S. S. R., vol. 2, p. 38, 1931  
(Tokyo; Misaki).

(Bleeker, Rés. Madagascar Pollen et Van Dam,  
pt. 5, p. 86, 1874 (Bourbon)).

Polymixia berndti Gilbert, Bull. U. S. Fish  
Comm., vol. 23, pt. 2, p. 616, pl. 78, 1903  
(1905) (type locality, Honolulu; off  
north west Oahu, 195 to 241 fathoms).

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Depth  $2\frac{3}{5}$  to 3; head  $2\frac{3}{4}$  to 3, width 2 to  $2\frac{1}{10}$ . Snout  $4\frac{1}{3}$  to  $4\frac{3}{4}$  in head; eye 3 to  $3\frac{1}{5}$ , greater than snout or interorbital; maxillary reaches  $\frac{4}{5}$  till opposite hind eye edge, expansion  $1\frac{2}{3}$  to 2 in eye, length  $1\frac{3}{4}$  to  $1\frac{7}{8}$  in head; interorbital  $3\frac{4}{5}$  to 4, low, broadly convex; barbels reaches pectoral or ventral origin,  $1\frac{1}{8}$  to  $1\frac{1}{2}$  in head. Gill rakers 4 or 5 + 8 to 10, lanceolate, about equals gill filaments or half of eye, also <sup>3</sup> more above and 5 below as imperfect rudiments.

Scales 33 to 35 in lateral line to caudal base and 2 to 4 more on latter; 7 or 8 above, 15 or 16 below, 36 to 38 predorsal forward opposite front eye edge; 7 rows on cheeks. Scales with 5 to 7 basal marginal

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Acanthurus ctenodon Valenciennes, Hist.

Nat. Poiss., vol. 10, 1835, p. 178, plate 289.

Caroline Islands; New Guinea. — Günther,

Cat. Fish. Brit. Mus., vol. 3, 1861, p. 342

(Ceylon, Ambonia, Ceram, New Hebrides). —

Bleeker, Verslagen <sup>medl.</sup> Akad. Wet. Amsterdam,  
deel 15, 1863, p. 21 (Hiti, Ambonia); deel 2

(2), 1868, p. 284 (Solor); deel 7 (2), 1873, p.

36 (Aru Islands). — Bleeker, Ned. Tijds.

dierk., deel 1, 1863, p. 254 (Wahai, Ceram), p.

271 (Atapupu, Timor). — Playfair, Fishes of

Zanzibar, 1866, p. 57 (Zanzibar). — Guichenot,

mem. Soc. Cherbourg, tome 2 (2), 1866, p. 146

(Madagascar). — Runzinger, Verh. zool. bot.

Ges. Wien, band 21, 1871, p. 509 (Koseir, Red

Sea). — Meyer, Ann. Soc. Espan. Hist. Nat.

Madrid, vol. 14, 1885, p. 24 (Mamado, Celebes).

Ctenodon ctenodon Fowler, Journ. Acad. Nat.

Sci. Phila., vol. 12, series 2, 1904, p. 545 (Padung).

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scallops; 38 to 40 apical denticles,  
7 to 9 series transversely; circuli  
fine.

D. V or VI, 33, I to 36, I, last  
spine 3 to 4 in head, first ray  
2 to  $2\frac{1}{10}$ ; A. IV, 14, I to 17, I, last  
spine  $3\frac{1}{4}$  to  $3\frac{1}{3}$ , first ray  $2\frac{2}{5}$  to  
 $2\frac{4}{5}$ ; caudal  $1\frac{1}{3}$  to  $1\frac{2}{5}$ , forked;  
least depth of caudal peduncle  $3\frac{1}{10}$   
to  $3\frac{1}{4}$ ; pectoral  $1\frac{2}{3}$  to  $1\frac{3}{4}$ ; ventral  
 $2\frac{2}{5}$  to  $2\frac{1}{2}$ .

Olive brown above, below pale  
or light brown, whitish when fresh  
with silvery tinge. Front lobe terminally  
of soft dorsal, fin otherwise brownish,  
paler basally. Other fins all black,  
more or less brownish, with edges,  
including barbels, pale to whitish.  
Iris silvery white, fades to yellowish  
or brown in alcohol. Inside gill

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Acanthurus (Ctenodon) strigosus Klunzinger,  
Fische. Roth. Meer., 1884, p. 85. — Steindachner,  
Abhandl. Senckenberg. Gesell., band 25, 1900,  
p. 427 (Batjan and Ternate).

→ Acanthurus striatus (non Duoy and Gaimard)  
Valenciennes, Hist. Nat. Poiss., tome 10, 1835, p.  
168 (part; Hawaiian Islands).

— Ctenochaetus strigosus Fowler and Ball,  
Bishop Mus. Bull., no. 26, 1925<sup>(1926)</sup>, p. 19 (Laysan,  
French Frigate Shoals, Johnston Island,  
Wake Island).

Ctenochaetus striatus Evermann and Seale,  
Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 97  
(Zamboanga). — Snyder, Proc. U. S. Nat.  
Mus., vol. 42, 1912, p. 423 (Misaki). —  
Fowler and Bean, Proc. U. S. Nat. Mus.,  
vol. 62, 1922, p. 57 (Zamboanga).

Ctenochaetes striatus Fowler, Proc. Acad. Nat.  
Sci. Phila., 1923, p. 42 (Madagascar).

opening pale to dusky.

Andaman Sea, Japan, Hawaii.

U. S. N. M., No. 38829. Tokyo market.  
Educational Museum. Length 178 mm.

U. S. N. M., No. 51607. Honolulu  
market. Albatross Collection.  
Length 185 mm, caudal tips broken.  
Type of Polymixia berndti.

U. S. N. M., No. 57595. Japan.  
P. L. Jouy. Length 181 mm.

U. S. N. M., No. 71273. Shimizu, Japan.  
Bureau of Fisheries. Length 213 mm.

Brit. Mus., vol. 3, 1861, p. 324 (type). —  
Peters, Monatsb. Akad. Wiss. Berlin, 1876, p.  
 440 (Mauritius). — Günther, Journ. Mus.  
 Godeffroy, band 4, 1875, p. 116, plate 79, figs. B-C  
 (Red Sea, East Africa, Hawaii, Polynesia).  
 — Day, Fishes of India, pt. 2, 1876, p. 207, plate  
 47, fig. 2 (Andaman). — Bleeker, Verhand.  
 Akad. Nat. Amsterdam, deel 18, no. 3, 1879, p.  
 2 (Mauritius). — Günther, Philos. Trans. Roy.  
 Soc. London, vol. 168, 1879, p. 470 (Rodriguez). —  
Day, l.c., Suppl., 1889, p. 789 (note). — Day,  
 Fauna British India, vol. 2, 1889, p. 143. —  
Steindachner, Denks. Akad. Wiss. Wien, band 71  
 abth. 1, 1907, p. 140 (Bal Haf, South Arabia). —  
Regan, Ann. Durban Mus., 1908, p. 246 (Kosi  
 Bay). — Pearson, Ceylon Adm. Rep. Marine  
 Biol., 1912-13, p. F6. — Weber, Siboga Exped.,  
 band 65, 1913, p. 319 (Inda Laut, Tjur, Kur).

Family Anomalopidae

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Body well compressed, rather deeply ovoid to elongate. Abdomen with median ridge. Head large or moderate, compressed, mucous cavities well developed. Snout short. Eye large, forward in head. Maxillary oblique, reaches below eye. Small teeth in bands in jaws and on palatines, none on vomer. Nostrils large, not separated from eyes by bony interspaces. Branchiostegals 7. Orbitosphenoid present. Scales small, stenoid, rugose. Lateral line axial, complete. Head scaleless, with large subocular luminous organ. Two dorsals, spinous fin <sup>when present</sup> with weak short spines. Second dorsal and anal

preceded by 2 or 3 short spines.  
moderate, latter little backward,,  
Caudal forked. Pectoral moderate  
or small, rather low. Ventral  
inserted little behind pectoral,  
with spine and 5 rays.

Small pelagic or coral reef fishes,  
of interest in possessing the  
remarkable subocular phosphores-  
cent organ, with which the fish is  
able to shoot or shut off its beam  
of light at will.

yellowish and rosy.

68232 U. S. N. M. Kagoshima, Japan.

Albatross Collection. Length 270 mm.

Type.

75145 U. S. N. M. Kagoshima, Japan.

Albatross Collection. Length 246 mm.

Paratype.

## Analysis of Genera

- a.<sup>1</sup> Spinous dorsal present; ventrals fall well short of vent; caudal peduncle short.
- b.<sup>1</sup> Body deeply ovoid; head large; single fleshy tubercle behind eye; scales minute; lateral line arched in front, with well developed pores; subocular luminous organ with membranous curtain; no interdorsal space; anal spines 3. Kryptophanaron.
- b.<sup>2</sup> Body elongate; head small; series of tubercles border eye posteriorly; scales moderate; lateral line not arched, irregularly straight, without prominent pores; subocular luminous organ without membranous curtain; interdorsal

Dentex marginatus Valenciennes, Hist. nat. Poiss., vol. 6, 1830, p. 245. Vanicolo; Java.

Dentex taeniopterus Valenciennes, Hist. nat. Poiss., vol. 6, 1830, p. 246. no locality. <sup>1</sup>/<sub>m</sub>  
Bleeker, Nederland. Tijdschr. Dierk., vol. 2, 1865, p. 173 (Siam); Verslagen Med. Akad. Wetensch. Amsterdam, series 2, vol. 4, 1870, p. 250 (~~China~~ Yang Tse Kiang, Pa Yang; Kan, Kiang, Ning Po); Atlas Ichth. Ind. Néerland., vol. 8, 1876-77, p. 83, pl. (56) 334, fig. 5 (Sumatra, Singapore, Java, Celebes, Batjan, Amboina, Timor).  
<sup>1</sup>/<sub>2</sub> Tirant, Service Océanogr. Péch. Indo Chine, 1929, note 6, p. 168 (Phu Yen).

Synagris taeniopterus Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 374 (North east coast Australia; Molucca Sea). <sup>1</sup>/<sub>m</sub> Kner, Reise Novara, Fische, 1865, p. 269 (Madras).

<sup>1</sup>/<sub>m</sub> Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, 1876, p. 272 (off

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space present; anal spines 2.

Anomalops.

a.<sup>2</sup> Spinous dorsal absent; ventrals reach vent; caudal peduncle long; single fleshy tubercle behind eye; scales very small; lateral line distinctly arched in front, with pores; subocular luminous organ with membranous curtain; anal spines 2.

Photoblepharon.

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no<sup>79</sup> Synagris furcosus (Valenciennes)  
Dentex furcosus Valenciennes, Hist. Nat.  
Poiss., vol. 6, 1830, p. 244. Trinqueemale, Ceylon.  
 $\frac{1}{m}$  Bleeker, Verhandel. Batavia. Genootsch.  
(Nat. Ich. Bengal), vol. 25, 1853, p. 38.  $\frac{1}{m}$   
Fowler, Mem. Bishop Mus., vol. 10, 1928, p.  
220 (copied Day).

Synagris furcosus Günther, Cat. Fishes  
Brit. Mus., vol. 1, 1859, p. 373 (Amboina,  
Lousiades, Chaumont Island, Lamlay  
[Larnley] Island, Australia).  $\frac{1}{m}$  Alleyne  
and Macleay, Proc. Linn. Soc. New South  
Wales, vol. 1, 1876, p. 271 (Palm Islands to  
Cape Grenville).  $\frac{1}{m}$  Macleay, Proc. Linn. Soc.  
New South Wales, vol. 5, 1881, p. 383 (North  
and North-east Australia, Palm Islands,  
Cape Grenville); vol. 8, 1883, p. 262 (Moresby  
Island, New Guinea).  $\frac{1}{m}$  Meyer, Ann. Soc.  
Españ. Hist. Nat. Madrid, vol. 14, 1885,  
p. 15 (North Celebes).

Genus Kryptophanaron Silvester and Fowler  
Kryptophanaron Silvester and Fowler,  
 Proc. Acad. Nat. Sci. Philadelphia,  
 vol. 78, p. 246, 1926. (Type  
Kryptophanaron alfredi Silvester and  
Fowler, orthotypic.)

Body oblong ovoid, compressed,  
 rather deep. Caudal peduncle  
 moderate. Head rather large,  
 compressed. Snout short, obtuse.  
 Eye large, anterior, high. Mouth  
 well inclined, mandible protruded.  
 Premaxillaries notched, protractile.  
 Maxillary slender anteriorly, abruptly  
 expanded behind. Bands of  
 villiform teeth in jaws and on  
 palatines, none on vomer or tongue.  
 Nostrils double. Interorbital low.  
 Gill rakers slender. <sup>Pseudobranchiae large.</sup> Stomach  
 coecal. Pyloric coeca <sup>10, large.</sup> present.  
 Air bladder <sup>large,</sup> divided, thin walled.  
 Gills 4, slit behind fourth.  
 Clavicle broad, hind edge above  
 pectoral fin, expanded and

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projecting free. Post-temporal strong. Vertebrae 16 + 14. Scales very small, ctenoid, rather irregular. Series of modified scales along lateral line and at soft dorsal and anal bases. Abdomen serrated. Lateral line little arched at first, axial, pores well developed. Subocular luminous organ with membranous movable curtain. Single fleshy tubercle behind eye. Bones of head entire, scaleless and finely sculptured, divided by naked tubiferous interspaces. Spinous dorsal small, spines weak. Soft dorsal higher and larger. Anal with few small spines, soft fin shorter than soft dorsal. Caudal broad,

Dorsal edged orange, with golden basal band. Length 200 mm. (Day.)

Arabia, India, Ceylon, Singapore.

According to Day close to Synagris notatus, differing in dentition and coloration.

forked, rudimentary rays well developed. Pectoral moderate. Ventrals little smaller than ~~pectorals~~ and placed little ~~backward~~ behind pectorals.

One species in the West Indies.

conic teeth in last  $\frac{2}{3}$  of mandible, anteriorly in jaw short inner villiform band; preorbital depth  $1\frac{2}{3}$  in eye; interorbital low; preopercle entire.

Scales 48 in lateral line; 4 above, 11 below (7 above anal origin in figure), 3 rows on cheeks and preopercle flange naked, predorsal extend forward opposite eye center.

D. X, 9, third spine 3 in total head length and edge of membranes not notched, first ray  $2\frac{1}{5}$ ; A. III, 7, third spine  $3\frac{3}{4}$ , first ray  $2\frac{1}{3}$ ; caudal equals head, forked, lobes pointed; least depth of caudal peduncle 3; pectoral  $1\frac{1}{5}$ ; ventral 3 in combined head and body to caudal base.

Reddish above, silvery along sides and below where yellow bands exist. Bluish spot on opercle. Fins reddish.

Kryptophanaron alfredi Silvester and Fowler

Kryptophanaron alfredi Silvester and Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 78, p. 246, pl. 18, fig. 1, pl. 19, fig. 2 (radiograph) and 4 (enlarged head) <sup>1926</sup> (type locality, off Kingston Harbor, Jamaica, West Indies). — Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., Append., pt. 2, 1928 (1930), p. 234 (reference).

Depth  $2\frac{1}{2}$ ; head  $2\frac{3}{5}$ , width 2. to eye  
Snout  $3\frac{3}{4}$  in head from snout tip,  
eye 4, ~~greatly exceeds snout or~~  
~~interorbital; maxillary reaches~~  
~~about  $\frac{3}{4}$  in eye or  $\frac{2}{3}$  in orbit~~  
subequal with snout or interorbital;  
orbit  $2\frac{2}{3}$  in head from snout tip,  
greatly exceeds snout or interorbital;  
maxillary reaches  $\frac{3}{4}$  in eye,  $\frac{2}{3}$  in  
orbit; interorbital  $\frac{3}{4}$  of ~~eye~~ orbit,  
slightly convex. Gill rakers 7+19.  
Scales about 150 in lateral series  
along lateral line; 20 above, 60 below.

Island, Ragay Gulf, Luzon. March  
10, 1909. Length 124 to 152 mm. [1284.]

Olive and silvery gray, white below.  
Large black lateral blotch under  
middle of lateral line. Few dashes of  
lilac blue about eye, near nostril and  
on little of lower edge of orbit.

Opercular flap slightly dusky. Scales  
of back and upper sides with pearly  
spot in center, olive of sides more or  
less bar like and reticulated. Dorsal  
very pale olive, clouded with vinaceous.  
Anal pale olive, slightly vermilion at  
tip of soft portion. Caudal olivaceous  
basally, vermilion terminally and 3

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Lateral line with 34 enlarged scutes. Row of 16 white, possibly luminous scutes along soft dorsal base and median row along abdomen 7. Each scale with several apical spinules, longer or more prominent on scales posteriorly on body.

D. IV, II, 14, soft fin height  $2\frac{1}{6}$ ? in total head length; A. III, 10, <sup>soft</sup> fin height  $2\frac{1}{5}$ ?; caudal  $1\frac{2}{5}$ , deeply forked; least depth of caudal peduncle  $3\frac{3}{4}$ ; pectoral  $1\frac{1}{2}$ , rays 16 or 17; ventral rays I, 6, fin 2 in total head.

Dark chocolate brown.  
Subocular luminous organ light yellow, curtain black.  
Iris dark.

Synagris notatus Day, Fishes of India,  
pt. 1, 1875, p. 93, pl. 24, fig. 3. in Ramsay  
and Ogilby, Proc. Linn. Soc. New South  
Wales, series 2, vol. 1886, p. 8 (Strickland  
River, New Guinea).

hemipterus güntneri Ogilby, mem.  
Queensland Mus., vol. 6, Dec. 19, 1918, p. 58  
(on Synagris furcosus Günther 1859, thought  
not of Valenciennes).

Gemyroge rubricauda (de Vis) Kent,  
Great Barrier Reef, 1893, p. 281 (369).  
Queensland. (no description).

Lutianus rubricaudus (de Vis) Ogilby,  
mem. Queensland Mus., vol. 6, Dec. 19, 1918,  
p. 58. Somerset, North Queensland. (name  
in synonymy; description of type.)

hemipterus robustus Ogilby, Proc. Roy.  
Soc. Queensland, vol. 28, 1916, p. 114 (another  
new name for Synagris furcosus Günther).

Jamaica. Only known from  
the type, described above.

Princeton University Museum.  
Off Kingston Harbor, Jamaica.  
July 1908. Professor Elric  
Dahlgren. Length 104 mm.  
Type.

Cape Sidmouth).  $\frac{1}{m}$  Macleay, Proc. Linn. Soc. New South Wales, vol. 5, 1881, p. 384 (North east coast Australia and Cape Sidmouth).  $\frac{1}{m}$  Károli, Termesz. Füzetek, Budapest, vol. 5, 1881, p. 154 (Sarangoon).  $\frac{1}{m}$  Day, Fauna British India, Fishes, vol. 1, 1889, p. 29.  $\frac{1}{m}$  Kent, Great Barrier Reef, 1893, p. 283 (Queensland).

Hemipterus taeniopterus Jordan and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 21. Cavite.  $\frac{1}{m}$  Evermann and Seale, Bull. Bur. Fisher., vol. 26, 1906 (1907), p. 82 (Van Fabian).

Hentex (Synagris) notatus Day, Proc. Zool. Soc. London, 1870, p. 684. Andaman Islands. Hentex notatus Fowler, Journ. Acad. Nat. Sci. Philadelphia, series 2, vol. 12, 1904, p. 527 (Padang); Proc. Acad. Nat. Sci. Philadelphia, 1929 (1913), p. 645 (Padang example).

Genus Anomalops Kner

Anomalops Kner, Sitzs. Ber. Akad. Wiss. Wien, <sup>math.-naturw. Kl.</sup> vol. 58, pt. 1, pp. 26, 294, 1868. (Type Anomalops graeffei Kner, monotypic.)

Body rather elongate, compressed, though robust. Head rather small, deep. Snout short, blunt. Eye large, with row of papillae along superior <sup>and posterior</sup> part of preorbital border. Mouth rather large, oblique. Jaws equal in front, with bands of small teeth. Teeth on palatines, absent from vomer. Opercles smooth. Branchiostegals 8. Scales medium, regular, rugose, ctenoid, form serrated ridge on belly. Lateral line not arched, straight, axial along side of back, without prominent pores. Luminous subocular organ without membranous curtain. Two dorsals, first with 5 spines, second fin with spine and 14 rays. Anal with 2 short spines. Caudal small, forked.

1000  
Pectoral short. Ventral small,  
with weak spine.

Indo Pacific.

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Depth  $2\frac{4}{5}$  to  $3\frac{1}{5}$ ; head  $2\frac{4}{5}$  to  $3\frac{2}{5}$ , width  $1\frac{9}{10}$  to  $2\frac{1}{4}$ . Snout  $2\frac{3}{5}$  to  $2\frac{4}{5}$  in head; eye  $4\frac{1}{8}$  to  $4\frac{1}{4}$ ,  $1\frac{2}{5}$  to  $1\frac{1}{2}$  in snout, slightly greater than interorbital; maxillary reaches  $\frac{1}{3}$  in eye, expansion  $1\frac{1}{2}$  to  $1\frac{3}{5}$  in eye, length  $2\frac{1}{4}$  to  $2\frac{2}{5}$  in head; teeth in narrow villiform bands in jaws of 3 or 4 irregular series and outer enlarged lateral row; 6 canines in front of each jaw; palate and tongue toothless; interorbital  $3\frac{1}{4}$  to  $4\frac{1}{3}$ , very slightly elevated, nearly level; preopercle edge entire and both along its flange and preorbital parallel marginal venules; opercular spine short, flat, blunt. Gill rakers  $5+8$ , short flat spinescent tubercles  $2\frac{1}{2}$  in gill filaments, which  $1\frac{1}{2}$  in eye.

Scales  $45$  to  $47$  in lateral line to caudal base and 2 or 3 more on latter;

Anomalops katoptron (Bleeker)

Heterophthalmus katoptron Bleeker,  
Act. Soc. Sci. Ind. Néerl., vol. 1,  
Manado, p. 43, 1856 (type locality,  
Manado, Celebes); Nat. Tijds. Ned.  
Indië, vol. 16, p. 253, 1858 (1859)  
( ); Act. Soc. Sci.  
Ind. Néerl., vol. 8, Amboina, p. 9,  
1860 ( ); Atlas  
Ich. Ind. Néerl., vol. 9, pl. (1) 455,  
fig. 1, 1877. — Vordeman, Nat. Tijds.  
Ned. Indië, vol. 59, p. 73, 1899.

Anomalops katoptron Bleeker, Arch.  
Néerl. Sci. Nat. Harlem, vol. 13, p. 48,  
1878 (Doreh —). — Weber,  
Siboga Exped., vol. 57, Fische, p. 189,  
fig. 49, 1/3 (Banda —). — Steche,  
Zeitschr. Wiss. Zool., vol. 93, p. 355,  
1909.

— Silvester and Fowler, Proc. Acad. Nat.  
Sci. Philadelphia, vol. 78, p. 247, pl.  
18, fig. 2, pl. 19, fig. 1 (radiograph),  
1926 (Weber's material).

— Fowler, Mem. Bishop Mus., vol. 10, p. 97, 1928 (Rarotonga). — Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 225, fig. 65, 1929 (Banda). — Fowler, Mem. Bishop Mus., vol. 11, no. 5, p. 321, 1931 (reference).

Anomalops graeffei Kner, Sitzs. Ber. Akad. Wiss. Wien, vol. 58, pt. 1, pp. 26, 294, pl. 1, fig. 1, 1868 (type locality, Kandavu).

Anomalops palpebratus (not Boddart) Günther, Journ. Mus. Godeffroy, vol. 5, pt. 11, p. 143, pl. 91, fig. A, 1876 (Paumotu). — Seale, Decas. Pap. Bishop Mus., vol. 4, no. 1, p. 2, 1906 (Fate', New Hebrides; Rarotonga).

Depth  $2\frac{7}{8}$ ; head  $2\frac{7}{8}$ . Snout  $4\frac{3}{4}$  in head; eye  $2\frac{3}{4}$ , 3 in snout, subequal with interorbital; maxillary reaches  $\frac{3}{4}$  in eye, expansion  $2\frac{1}{3}$  in eye, length 2 in head; interorbital  $2\frac{2}{3}$ , with slight median depression. Gill rakers  $10+23$ , lanceolate,  $1\frac{4}{5}$  in eye; gill filaments  $\frac{3}{5}$  of gill rakers.

Scales 74 close along and above lateral line to caudal base and 7 more on latter; tubular scales 55 in lateral line to caudal base; 10 above, 22 below, 16 predorsal. Harrow band of scales along soft dorsal. Scales with 20 to 25 well developed apical denticles, 1 to 4 in transverse

Ann. Soc. Españ. Hist. Nat. Madrid,  
vol. 14, 1885, p. 19 (Cebu, Ternate). — <sup>m</sup>

Regan, Proc. Zool. Soc. London, pt. 1, 1909,  
p. 403 (Christmas Island, Indian Ocean).

Sphaerodon heterodon Elera, Cat.

<sup>a</sup> Fauna Filipinas, vol. 1, 1895, p. 483 (Cebu).

Sphaerodon lunus Günther, Ann.

Magn. Nat. Hist., series 5, vol. 4, 1879, p.

137. Tuu, French Islands. — Pöhl,  
Cat. Mus. Godeffroy, no. 9, 1884, p. 29 (North Cook Island).

Depth  $2\frac{1}{4}$  to  $2\frac{3}{5}$ ; head  $2\frac{4}{5}$  to  $2\frac{7}{8}$ ,  
width 2 to  $2\frac{1}{10}$ . Snout  $2\frac{1}{10}$  to 3 in head;  
eye  $2\frac{1}{5}$  to  $3\frac{3}{4}$ , greater than snout in  
young to  $1\frac{7}{8}$  with age, greater than  
interorbital in young to  $1\frac{1}{4}$  with age;  
maxillary reaches  $\frac{1}{10}$  to  $\frac{2}{5}$  in eye,  
expansion  $1\frac{1}{8}$  to  $3\frac{1}{2}$  in eye, length 2  
to  $2\frac{4}{5}$  in head; upper and lower  
front canines, followed by single row  
of 7 molars above and below on each  
side of jaw, also small patch of

series; circuli fine basally.

D. V - I, 14, third spine  $2\frac{2}{3}$  in head, first branched ray  $1\frac{5}{6}$ ; A. I, 11, I, first branched ray  $2\frac{1}{5}$ ; caudal  $1\frac{1}{3}$ , well forked; pectoral  $1\frac{4}{5}$ ; ventral  $1\frac{7}{8}$ .

Dark brown. Iris slate. Infraorbital organ white, in black pigment. Spinous dorsal blackish. Soft dorsal pale, with broad, subterminal blackish brown longitudinal band and another less wide basally. Anal blackish brown, edge narrowly whitish. Caudal dusky, upper and lower edges narrowly pale. Paired fins dusky black, hind edges narrowly whitish.

1895, p. 451 (compiled).

Monotaxis indica Bennett, Life of  
Raffles, 1830, p. 683. Sumatra.

Lethrinus latidens Valenciennes, Hist.

Nat. Poiss., vol. 6, 1830, p. 316. New-Guinea.

$\frac{1}{n}$  Richardson, Zool. Voy. Sulphur, <sup>fish,</sup> vol. 1, 1846, p. 145 (probably New-Guinea).

$\frac{1}{m}$  Günther, Cat. Fishes Brit. Mus., vol. 1,  
1, 1859, p. 464 (copied).

Sphaerodon latidens Kner, Reise  
Novara, Fische, 1865, p. 83, pl. 4, fig. 1  
(Australia).

Pagrus heterodon Bleeker, Natuurk.  
Tijdschr. Nederl. Indië, vol. 6, 1854,  
p. 54. Singangole, Palmakheira.

Sphaerodon heterodon Günther, Cat.  
Fishes Brit. Mus., vol. 1, 1859, p. 465  
(Amboyna; Ceylon).  $\frac{1}{m}$  Schmeltz, Cat.  
Mus. Godeffroy, no. 4, 1869, p. 14 (Kandavu).

$\frac{1}{m}$  Day, Fishes of India, pt. 1, 1875, p. 138.

$\frac{1}{m}$  Károli, Termész. Füzetek, Budapest,  
vol. 5, 1881, p. 157 (Ceylon).  $\frac{1}{m}$  Meyer,

East Indies, Melanesia, Polynesia.  
I have studied a single example  
116 mm. long from Rarotonga,  
Cook Islands, now in the  
Bishop Museum!

1925, p. 26 (Honolulu).  $\frac{1}{m}$  Fowler and  
Bull, Bull. Bishop Mus., no. 26, 1925, p. 15  
(Wake Island).  $\frac{1}{m}$  Herre and Montalban,  
Philippine Journ. Sci., vol. 33, no. 4,  
Aug. 1927, p. 425, pl. 5, figs. 2-3 (Olongapo,  
Umbil Island, Gaspar Island,  
Simara Island, Agutaya, Samal  
Island, Manila).  $\frac{1}{m}$  Fowler, Mem.  
Bishop Mus., vol. 10, 1928, p. 219, pl. 18c  
(Honolulu, Shortland Island, Karotonga,  
Tubuai, Wake Island, Apia, Urhno,  
Elon Island, Society Islands, Lipiang);  
Proc. Acad. Nat. Sci. Philadelphia,  
1929 (1930), p. 644 (Honolulu).

Monotaxis (Sphaerodon) grandoculis Peters,  
monatsber. Akad. Wiss. Berlin, 1876 (1877),  
p. 834 (Carteret Harbor, New Ireland).

Cantharus grandoculis Sauvage, Hist. Nat.  
Madagascar, Poiss., 1897, p. 192, pl. 20, figs.  
3-3a.  $\frac{1}{m}$  Elera, Cat. Fauna Filipinas, vol. 1,

Genus Photoblepharon Weber

Photoblepharon Weber, Siboga Exped.,  
Introduction, p. 108, 1902. (Type  
Sparus palpebratus Boddaert,  
monotypic.)

Body deep, compressed. Head rather large, deep. Snout short, obtuse. Eye large, with 2 rows of papillae along superior part of postorbital border. Mouth rather large, very oblique. Jaws equal in front, with bands of small teeth, forming an external patch on each side of symphysis of lower jaw. Few small teeth on palatines, none on vomer. Opercles smooth. Branchiostegals 8. Scales very small, rugose, ctenoid, on belly forming indistinct serrated ridge between vent and ventrals. Lateral line distinctly arched in front, with pores. Luminous subocular organ with membranous curtain. One dorsal, spinous fin absent, with 5

simple and 15 or 16 branched,  
of which first 2 simple ones  
pungent. Anal with 2 short  
weak spines. Caudal forked.  
Pectoral moderate, low.  
Ventral thoracic, with spine  
and 5 branched rays.

One species in the East Indies.

radiating striae; 123 to 135 apical denticles, minute short points, with 2 to 16 transverse series of basal elements; circuli very fine.

D. X, 9, I, fourth spine  $2\frac{7}{8}$  to  $3\frac{1}{10}$  in head, seventh ray  $1\frac{4}{5}$ , last ray 2; A. III, 7, I, third spine  $2\frac{7}{8}$  to 3, first ray  $2\frac{2}{5}$ ; lower caudal lobe  $1\frac{1}{5}$ , fin deeply forked; least depth of caudal peduncle 3 to  $3\frac{1}{4}$ ; pectoral 1 to  $1\frac{1}{8}$ ; ventral  $1\frac{1}{10}$  to  $1\frac{2}{5}$ .

Back light brown with pink tinge, sides and below still paler with silvery white sheen, lower or under edge of body sulphur yellow. Iris light yellowish. Inside gill opening reddish. Dorsals edged grayish, with ill defined submarginal dusky line whole length. Caudal filament of upper lobe  $2\frac{1}{5}$  in rest of body, sulphur yellow.

Photoblepharon palpebratus (Boddaert)

Sparus palpebratus Boddaert, Nouv.  
hord. Beiträge, band 2, Petersburg  
and Leipzig, p. 55, 1781 (type locality,  
Amboina). <sup>pl. 4, fig. 1,</sup>

— Bonnaterre, Tabl. Ichth., p. 104,  
1788 (Amboina). — Gmelin, Syst.  
Nat. Linn., ~~vol. 1~~ vol. 1, p. 1274, 1789  
(Amboina). — Walbaum, Artedii Pisc.,  
vol. 3, p. 289, 1792 (copied). — Forster,  
Fauna Indica, p. 15, 1795 (reference).

Kurtus palpebratus Schneider, Syst.  
Ichth. Bloch, p. 164, 1801 (compiled).

Bodianus palpebratus Lacépède, Hist.  
Nat. Poiss., vol. 4, pp. 278, 286, pl. 4, fig.  
2, 1802 (on Bonnaterre).

Heterophthalmus palpebratus Bleeker,  
Nat. Tijds. Ned. Indië, vol. 16, p. 253,  
1858-59.

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Photoblepharon palpebratus Weber,  
Siboga Exped., Introduction, p. 108, 1902

— Steche, Zeitschr. Wiss. Zool., vol. 93,  
p. 354, 1909 (subocular luminous organ).

— Weber, Siboga Exped., vol. 57, Fische,  
p. 190, 1913 (Banda).  
figs. 50-51

— Silvester and Fowler, Proc. Acad. Nat. Sci.  
Philadelphia, vol. 78, p. 247, pl. 18, fig. 3,  
pl. 19, fig. 3 (radiograph), 1926 (Weber's  
material). — Weber and Beaufort,  
Fishes Indo Austral. Archip., vol. 5,  
p. 227, figs. 66-67, 1929 (Banda).

(95b)

13591. Tanakeke Island, Flores Sea.  
December 21, 1909. Length 204 mm.

A 1401. Tampuan Island. December  
21, 1909. Length 228 mm. General color  
dark. Lateral blotch formed by  
darkened scale margins. Slight tinge  
of blue below eye and in nostril.  
Opercular flap without scarlet.  
Dorsals with pale mottling on vermillion  
hyaline. Caudal similar but markings  
more distinct. Paired fins with slight  
orange shade.

1010

Depth  $2\frac{1}{4}$ ; head 3. Snout  $5\frac{1}{2}$  in head; eye  $2\frac{1}{5}$ , greatly exceeds snout; maxillary reaches about  $\frac{2}{5}$  in eye, length  $2\frac{1}{4}$  in head; interorbital low.

Scales about 110 along lateral line; scales 40 in lateral line. Lateral line with distinct anterior arch, with pores.

D. III, 15 or 16, fin height anteriorly  $1\frac{1}{4}$  in head; A. II, 14 or 15, fin height anteriorly  $1\frac{4}{5}$ ; caudal 1, deeply forked; least depth of caudal peduncle  $2\frac{7}{8}$ ; pectoral  $1\frac{1}{4}$ , rays I, 14; ventral rays I, 5, fin length  $1\frac{1}{2}$  in head.

Brown. Iris brown. Subocular luminous organ white. Fins brown.

and ~~4~~ much smaller lower in front; interorbital  $3\frac{3}{5}$  to  $4\frac{1}{4}$  very slightly elevated or broadly convex; hind preopercle edge with some very feeble minute serrae, rest of edge below entire; orbital region, interorbital, preorbital and preopercle venulose; opercle with short, broad, flat spine. Gill rakers 6 or 7 + 6 to 8 short flat spinescent tubercles,  $\frac{1}{3}$  of gill filaments, which  $\frac{1}{2}$  of eye.

Scales 46 or 47 in lateral line to caudal base and 2 to 4 more on latter; 4 or 5 above, 11 to 14 below, 14 or 15 predorsal forward opposite eye center; 3 rows on cheeks, preopercle flange naked. Suprascapula scale venulose, like upper row of occipital scales and forward around eye and interorbital. Scales with 6 to 9 basal

East Indies. Said to reach  
90 mm.

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Synagris bathybuis (Vnyder)

hemipterus bathybuis Vnyder, Proc. U. S.

Nat. Mus., vol. 40, 1911, p. 532, fig. 6.

Kagoshima, Japan.

Euthyopteroma bathybuis Vnyder, ~~Proc.~~

U. S. Nat. Mus.,

cit., vol. 42, 1912, p. 415 (Kagoshima).

(Error.)

Euthyopteroma bathybuis Jordan and

Thompson, Proc. U. S. Nat. Mus., vol. 41,

1912, p. 566, fig. 6 (type).

Depth 3 to  $3\frac{1}{5}$ ; head 3 to  $3\frac{1}{3}$ , width  $1\frac{4}{5}$  to  $1\frac{7}{8}$ . Snout 3 to  $3\frac{2}{3}$  in head; eye 3 to  $3\frac{2}{3}$ , greater than snout to  $1\frac{1}{5}$ , greater than interorbital to  $1\frac{1}{8}$ ; maxillary reach  $\frac{1}{8}$  to  $\frac{1}{5}$  in eye in young, to front eye edge with age, expansion  $\frac{1}{2}$  to 3 in eye, length  $2\frac{1}{2}$  to  $2\frac{3}{4}$  in head; teeth with inner band villiform, outer row little enlarged, of which 6 to 7 upper canines anteriorly